

Liquids to Value



T-smart Seat Valves

Small but powerful

Made by GEA Tuchenhagen



Simple and reliable – without compromise . . .

. . . the new T-smart seat valves!

With T-smart, GEA Tuchenhagen opens another chapter of high-quality process components for a variety of uses. The new “T-smart” product label stands for:

- standardized valve concept with basic functions
- small and compact design
- new standards with regard to ease of use and maintenance
- proven GEA Tuchenhagen quality and process reliability
- high cost-effectiveness of production

The T-smart seat valve program comprises:

Shut-off valves, changeover valves, tank-bottom valves and mixproof valves.

T-smart seat valves enable smooth production processes.


Whether you are processing milk, beer, other beverages, pasty food or fine chemical products – what counts are the quality of the final product and the efficiency of the production line. T-smart seat valves are pointing the way – the development is based on the latest findings in process technology – in compliance with national and international standards. The design which enable gentle handling of the product, conformity with all hygienic requirements, full CIP/SIP capability as well as unparalleled ease of maintenance – these are the characteristics which make the T-smart valve series stand out.



The valve concept with standard configurations

With T-smart, GEA Tuchenhagen offers a valve concept with basic functions, designed for economical processes. For T-smart a deliberate decision was made not to offer a large number of options – for the benefit of the user. T-smart, of course, still provides all the variants and equipment options (e.g. housing combinations, various sealing materials, feedback systems) required by the process.

A new feature is the classification within the T-smart valve series – unambiguously assigned article numbers facilitate the selection and ordering process.

3022-90° 	DN/ OD	Order number Artikelnummer Referencia Codo de commande EPDM
	25	3022-1025-0110-0000
40	3022-1040-0110-0000	
50	3022-1050-0110-0000	
65	3022-1065-0110-0000	
80	3022-1080-0110-0000	
100	3022-1100-0110-0000	
1"	3022-0100-0110-0000	
1,5"	3022-0150-0110-0000	
2"	3022-0200-0110-0000	
2,5"	3022-0250-0110-0000	
3"	3022-0300-0110-0000	
4"	3022-0400-0110-0000	

The design – small and compact

T-smart seat valves are characterized by their extremely compact design. The resulting low weight enables easy handling especially for servicing work. Other advantages of this design only become obvious at “second glance”:

- balanced valve disks prevent undesirable pipe hammers, especially if the direction of flow is reversed (valve is closed in direction of flow), thus further improving process reliability.
- actuator systems kept short to minimize air consumption and reduce operating costs



T-smart Seat Valves

The new bayonet lock

The bayonet lock connecting the housing and the lantern also sets new standards.

T-smart seat valves do not have any loose fixing elements. Handling the bayonet lock, especially when carrying out servicing and maintenance work, is rather easy:

- Release securing clip
- Turn actuator clockwise through 90°
- Remove valve insert
- Ready!
- Assemble in reverse order

Removing the valve insert does not require control air.



Lift securing clip



Turn actuator clockwise through 90° and pull valve insert out



Securing clip before snapping into position



Securing clip snapped in position

Ease of maintenance

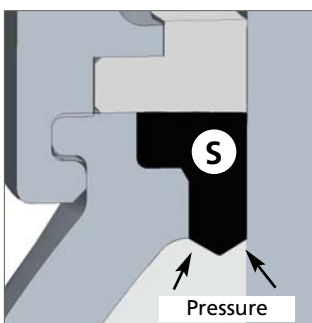
When developing the T-smart valve series particular attention was devoted to ease of operation and maintenance.

Apart from the easy handling of the bayonet lock for dismantling the valve insert, the product seals can be replaced in next to no time without the need of special tools. The following pictures of a T-smart shut-off valve show the simple steps required:



1. Release valve insert
2. Replace seals *)
3. Re-assemble

*) without any further disassembly of valve insert needed



T-smart seat valves also require fewer product seals. Compared with conventional valves, the sealing ring (S) has two functions – providing a static seal against the atmosphere and a dynamic seal on the valve stem. The advantages are obvious – fewer product seals also mean minimized risk of hygiene problems and failure.

The control and feedback systems

T-smart seat valves can be fitted with the typical GEA Tuchenhagen control and feedback systems.



Proximity switch holder with proximity switches



T.VIS® control system

The tried and trusted GEA Tuchenhagen quality

When developing the T-smart series special attention was also paid to quality and process reliability in addition to the characteristics described above.

Highest hygienic design requirements, favourable flow properties and gentle product handling, selection of top-grade materials, high-grade surfaces and extensive and thorough testing for suitability for practical use are the distinguishing features of the T-smart seat valves.

T-smart seat valves are manufactured in accordance with the highest quality standards, based on the GEA Tuchenhagen quality assurance system, which is certified according to DIN ISO 9001.

Permanent quality tests in the workshop, marking of all components, function and leak tests are among the features that ensure a constantly high quality level and allow reliable tracing if spares are required.

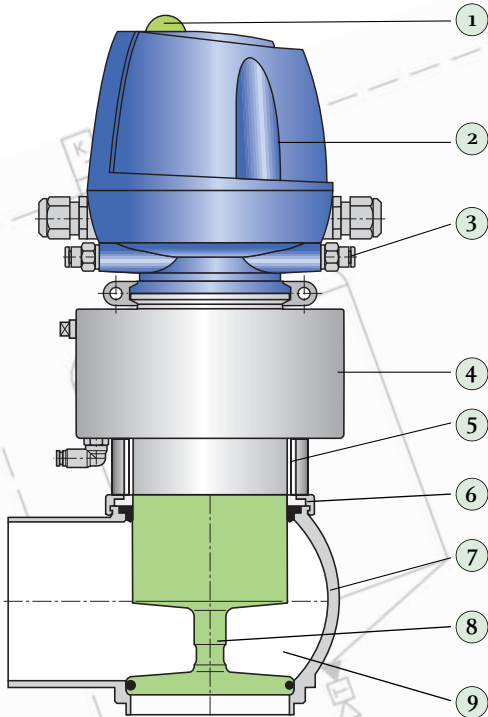


T-smart Shut-Off Valves



T-smart shut-off valves are used for simple shut-off functions in pipe systems.

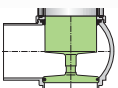
T-smart shut-off valves have single-acting pneumatic actuators type NC (normally closed), alternatively type NO (normally open), and are available in 2 different housing combinations (2 or 3 connections).



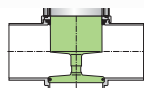
Features of T-smart shut-off valves

- 1 Illuminated cap for the visualization of the valve's switching statuses, clearly visible from all sides
- 2 TVIS® control system
- 3 Air connection for main stroke
- 4 Actuator
- 5 Compact, open lantern
- 6 Innovative bayonet lock, for easy and fast maintenance
- 7 Solid body
- 8 Balanced, one-piece valve disk
- 9 Pocket-free design

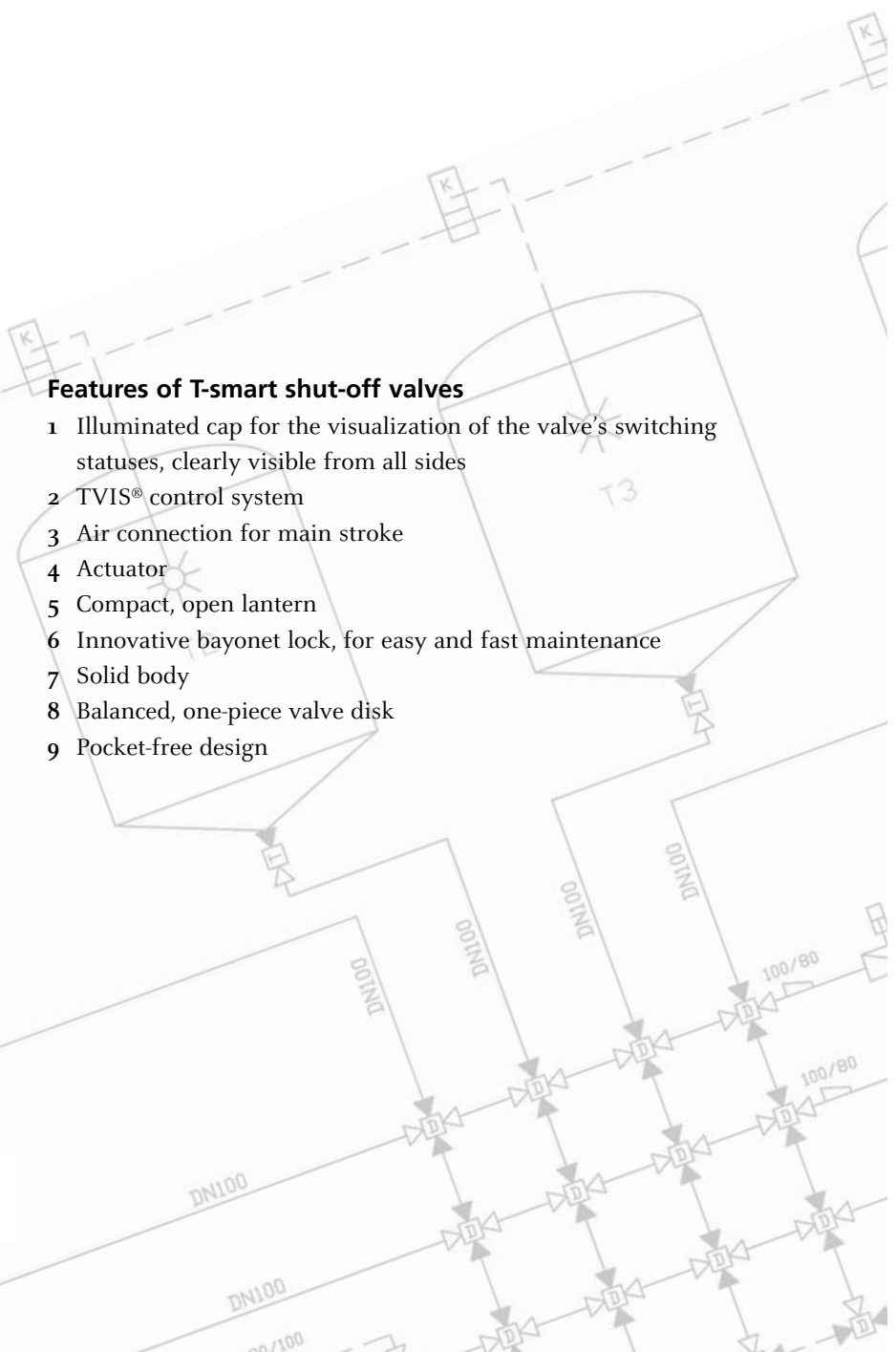
Housing combinations



1007



1003



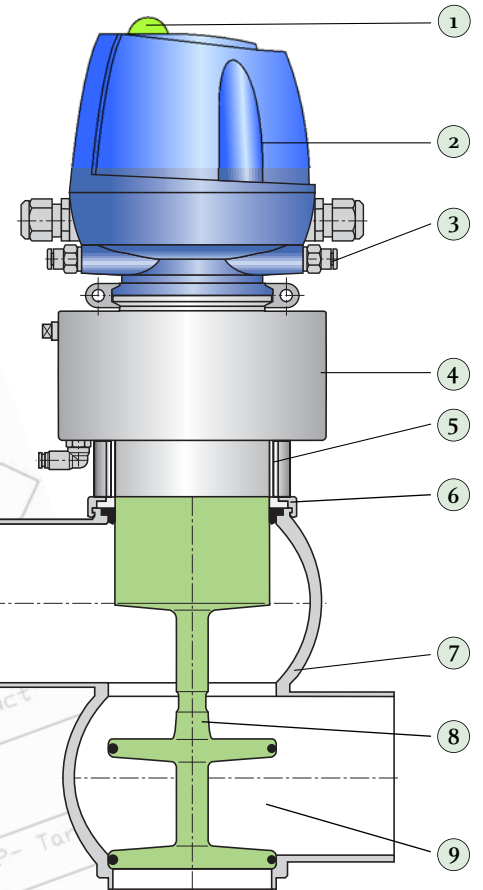
T-smart Changeover Valves

T-smart changeover valves are used for converging media from two pipes into one pipe. T-smart changeover valves are fitted with single-acting pneumatic actuators type NC (normally closed), alternatively type NO (normally open), and are available in 2 different housing combinations (3 or 4 connections).

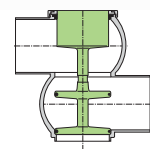


Features of T-smart changeover valves

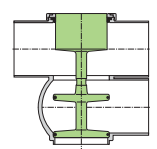
- 1 Illuminated cap for the visualization of the valve's switching statuses, clearly visible from all sides
- 2 TVIS® control system
- 3 Air connection for main stroke
- 4 Actuator
- 5 Compact, open lantern
- 6 Innovative bayonet lock, for easy and fast maintenance
- 7 Solid, one-piece body
- 8 Balanced, one-piece valve disk
- 9 Pocket-free design



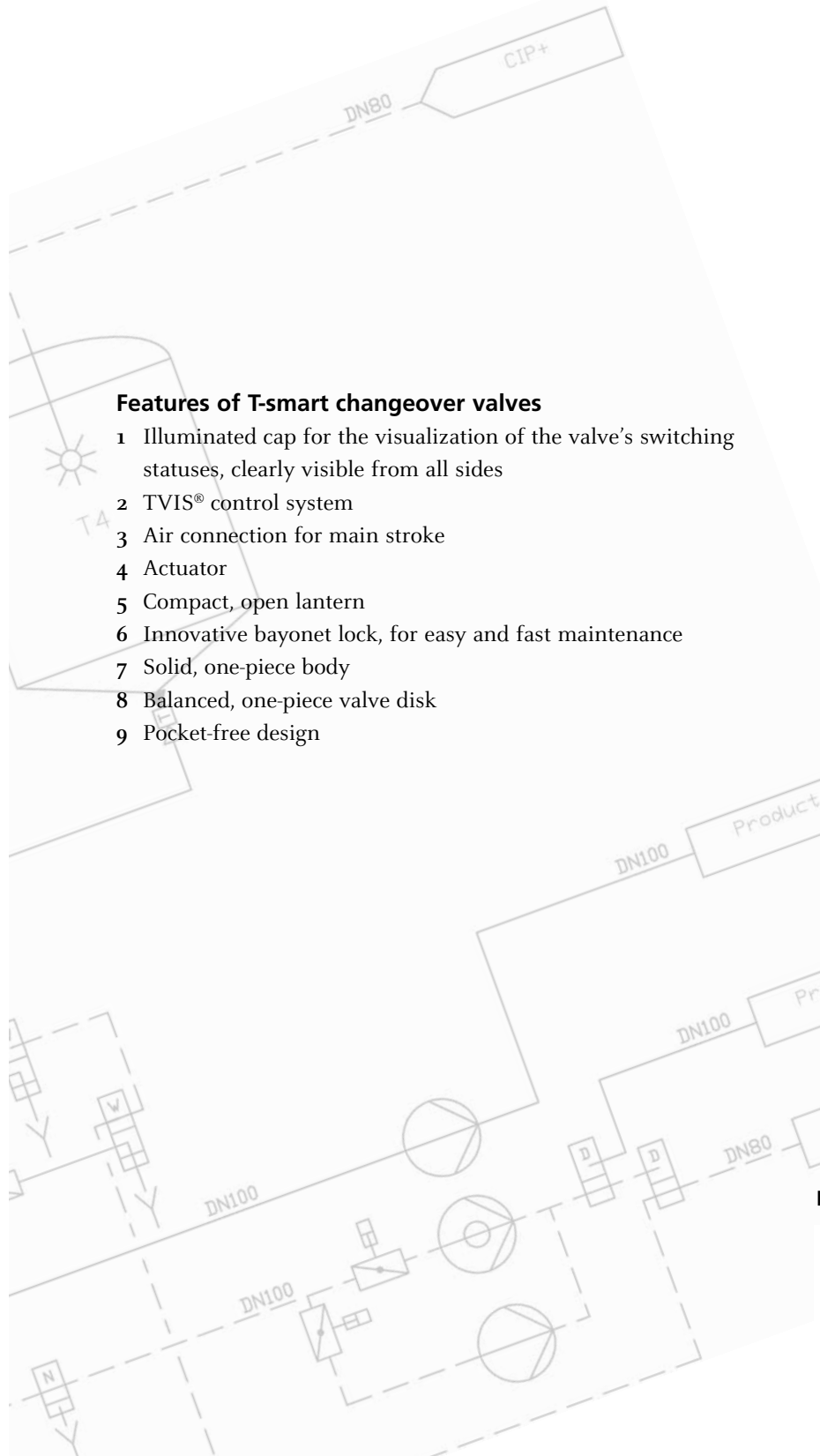
Housing combinations



2017



2027

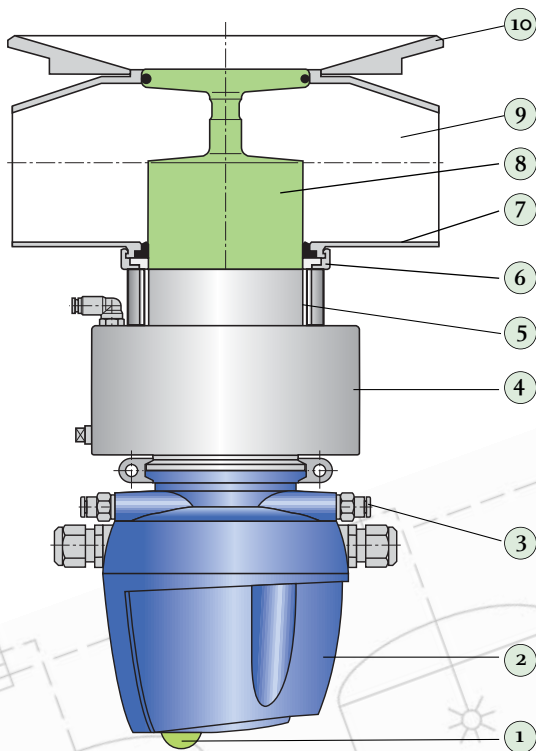


T-smart Tank-Bottom Valves



T-smart tank-bottom valves are used to shut off fluid media at vessels or tanks. They are designed to be fitted at the lowest point of the tank bottom to shut-off the media flush with the tank bottom without any kind of sump. The pocket-free design provides complete draining of the tank and optimal CIP/SIP cleaning. The extremely compact design allows T-smart tank bottom valves to be fitted into the tightest of spaces.

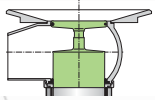
Thanks to the robust design of the body connection flange, the valve can be welded into place without any distortion. T-smart tank-bottom valves are fitted with single-acting pneumatic actuators type NC (normally closed), alternatively type NO (normally open), and are available in 2 different housing combinations (1 or 2 outlets).



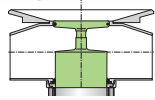
Features of T-smart tank-bottom valves

- 1 Illuminated cap for the visualization of the valve's switching statuses, clearly visible from all sides
- 2 T.VIS® control system
- 3 Air connection for main stroke
- 4 Actuator
- 5 Compact, open lantern
- 6 Innovative bayonet lock, for easy and fast maintenance
- 7 Solid body
- 8 Balanced, one-piece valve disk
- 9 Pocket-free design
- 10 Body connection flange

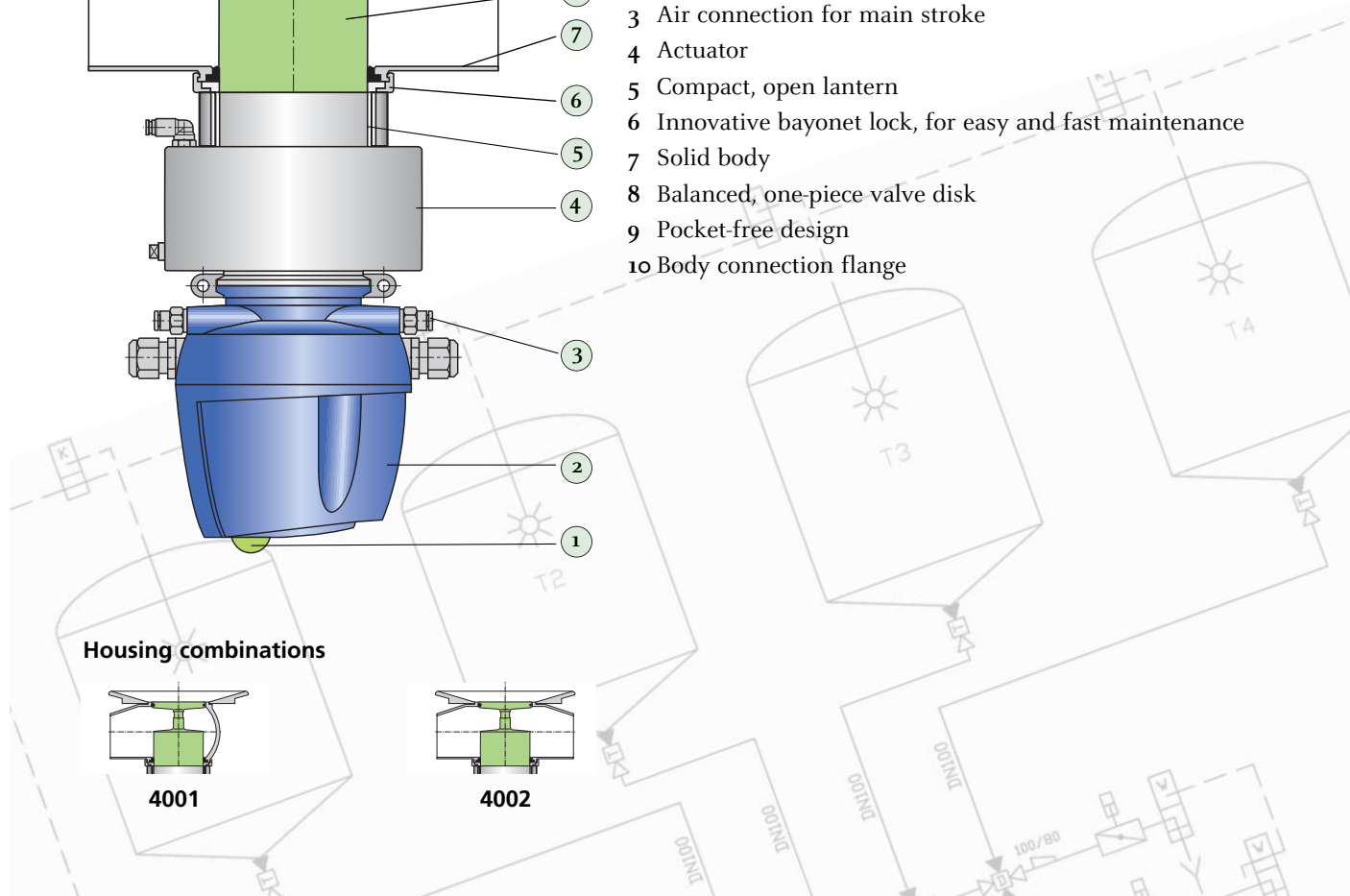
Housing combinations



4001



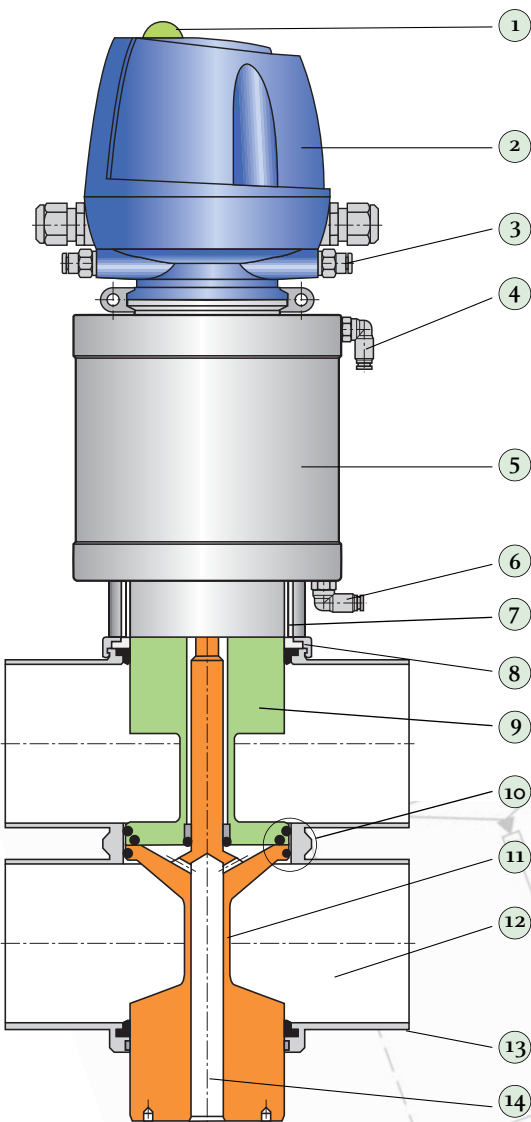
4002



T-smart Mixproof Valves

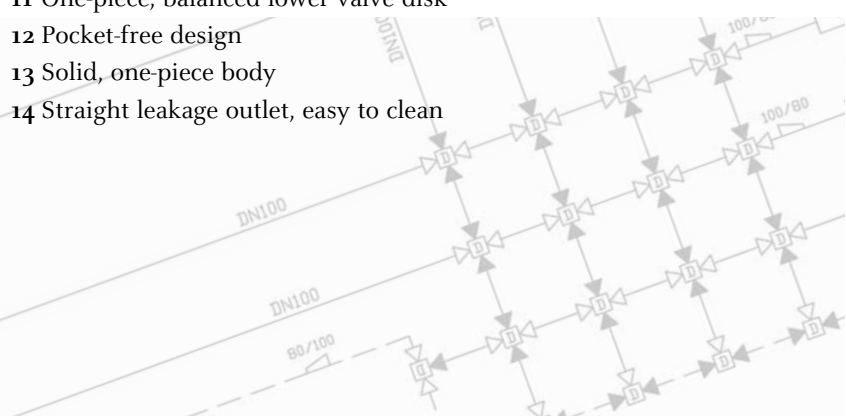
T-smart mixproof valves enable reliable separation of dissimilar media in your production process.

- The radial sealing system reduces cleaning effort to a minimum
- The compact design minimizes the space requirement and ensures easy handling for maintenance work.
- Double-balanced valve disk
- The integrated lifting function makes a significant contribution to product safety during CIP/SIP cleaning.
- Low number of product-contact seals



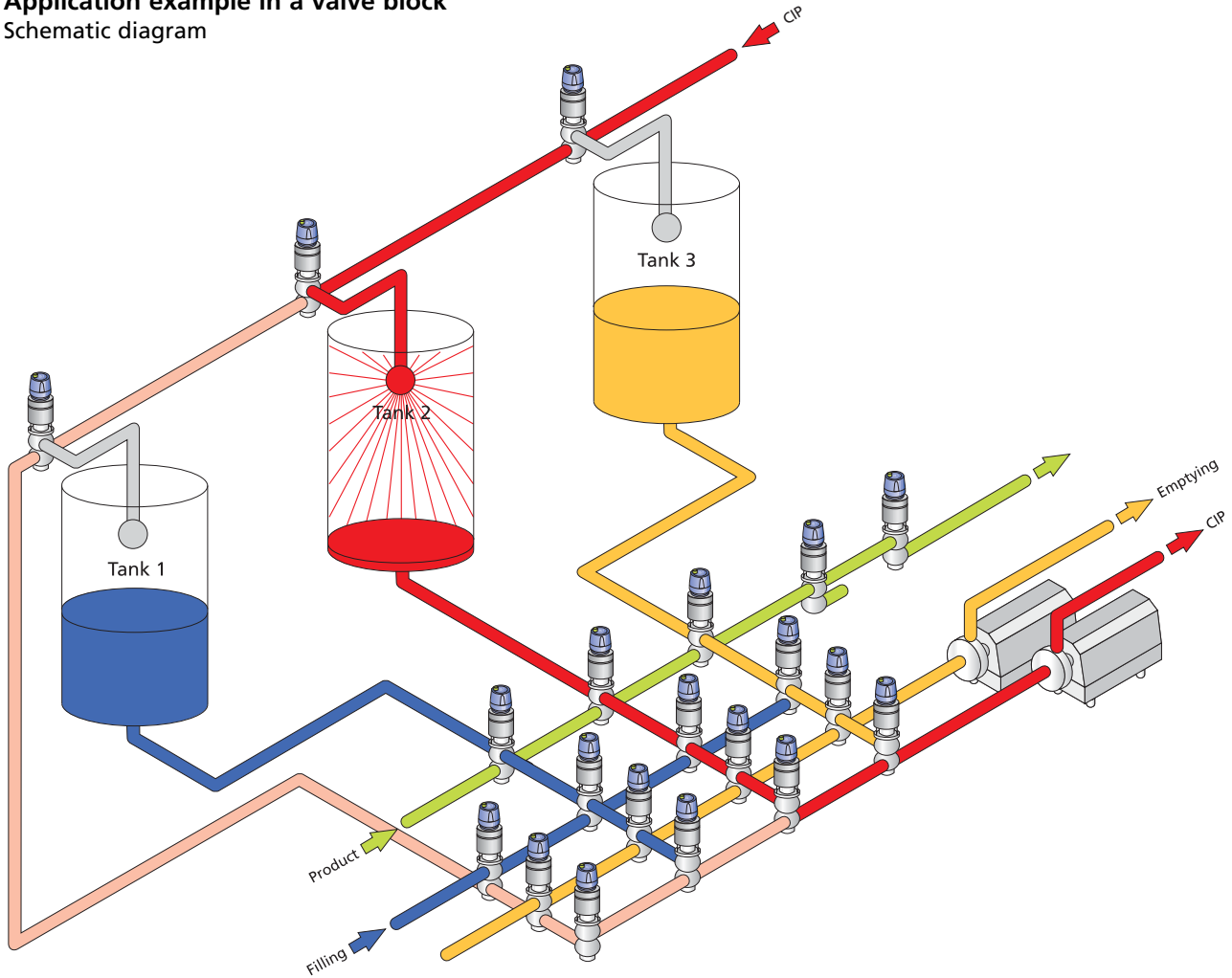
Features of T-smart mixproof valves

- 1 Illuminated cap for the visualization of the valve's switching statuses, clearly visible from all sides
- 2 T.VIS® control system
- 3 Air connection for main stroke
- 4 Air connection for lifting the bottom valve disk
- 5 Valve actuator with integrated lifting function
- 6 Air connection for lifting the top valve disk
- 7 Compact, open lantern
- 8 Innovative bayonet lock, for easy and fast maintenance
- 9 One-piece, balanced upper valve disk
- 10 Switching due to double radial valve seats
- 11 One-piece, balanced lower valve disk
- 12 Pocket-free design
- 13 Solid, one-piece body
- 14 Straight leakage outlet, easy to clean



T-smart Mixproof Valves

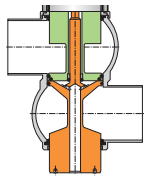
Application example in a valve block Schematic diagram



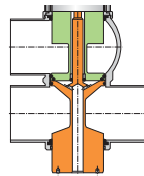
Valve block

T-smart mixproof valves allow tank filling, emptying and CIP processes to run at the same time. Reliable separation of incompatible media at all times.

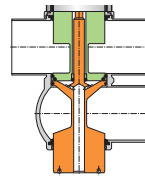
Housing combinations



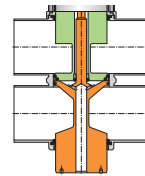
3011
90°, 180°, 270°



3012
90°

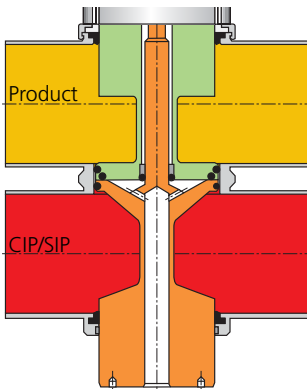


3021
90°



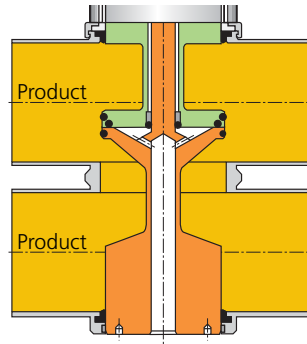
3022
90°

Function of the T-smart mixproof valve



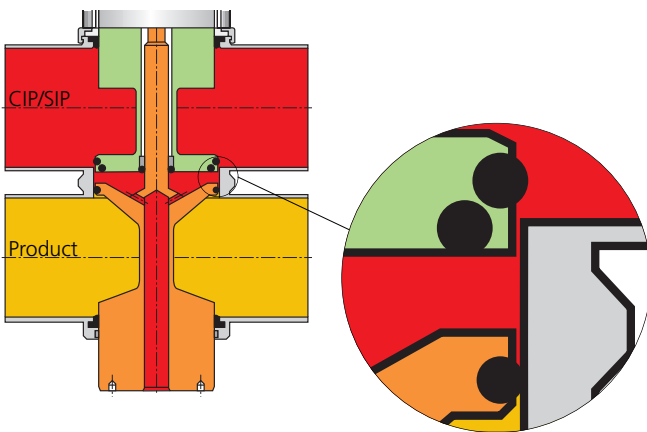
Closed position

Non-actuated position of the valve. The two process pipes are reliably separated from each other by double radial valve seats.



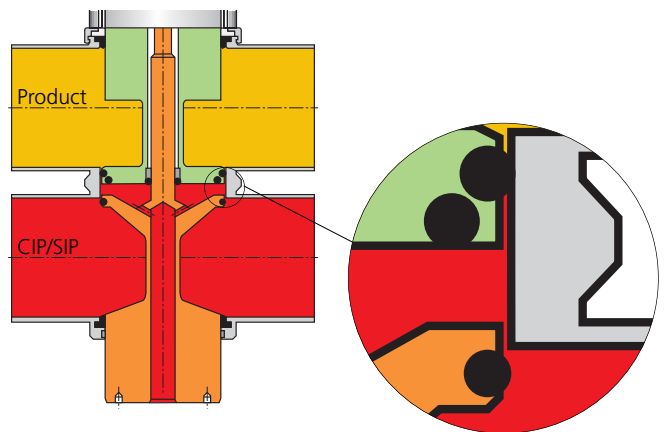
Open position

When actuating the main stroke the bottom valve disk rises, closes the leakage cavity and, carrying the upper valve disk along, moves to the open position.



Lifting of upper valve disk

During the lifting phase, the housing seat, valve disk, seat seals and leakage cavity are cleaned. The metallic throttling gap ensures optimum cleaning conditions.



Lifting of lower valve disk

Technical data and materials, T-smart Seat Valves

Materials

Product contact

housing 1.4404 (AISI 316 L)

interior parts 1.4404 (AISI 316 L)

No product contact 1.4301 (AISI 304)

Surface finish

In contact with the product $R_a \leq 0.8 \mu\text{m}$

Higher surface qualities on request

Not in contact with the product bright finish

Seals

Standard EPDM (FDA), optional HNBR (FDA)

Operating temperature EPDM -40 – +135 °C

(temporarily 150 °C)

HNBR -25 – +125 °C)

Sterilization temperature 150 °C (1 hour max.)

Operating pressure

Standard max. 6 bar

Resistance to pressure hammers max. 25 bar
(mixproof valves)

Control air

min. 6 bar, max. 8 bar

T-smart seat valves are available in the following pipe connection sizes and nominal widths

Metric

Outside diameter acc. to DIN 11850, Row II,

DIN 11866, Row A

Metric: DN 25 to DN 100

Inch OD

Outside diameter following ASME-BPE-a-2004,

DIN 11866, Row C

Inch OD: 1" to 4"

DIN ISO 9001 / EN 29001

T-smart seat valves meet the regulations according to FDA, LMBG 4/94 and EN 93



GEA Tuchenhagen T-smart



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